

**TOTAL RETENTION
SANITARY SEWER LAGOON CALCULATIONS**

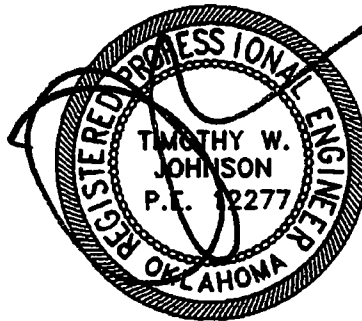
TO SERVE

CARLTON LANDING

LOCATED NEAR

Eufaula, Oklahoma

S-30601



*9/8/10
Call for 58340
Tyler will get info to me.*

July 29, 2010

RECEIVED

JUL 30 2010

DEQ ECLS

Prepared by:



JOHNSON & ASSOCIATES, INC.

1 East Sheridan, Suite 200

Oklahoma City, Oklahoma 73104

(405) 235-8075

(405) 235-8078*Fax

*Letter Sent
9/28/10*



1 East Sheridan Avenue
Suite 200
Oklahoma City, Oklahoma 73104
405-235-8075 • FAX: 405-235-8078

April 18, 2012

Oklahoma Department of Environmental Quality
707 N. Robinson
Oklahoma City, OK 73101

Attention: Ms. Wendy Sheets

Re: **Carlton Landing Sanitary Sewer Lift Station and Lagoon Liner
(Facility No. S-30601)**

Dear Ms. Sheets:

Johnson & Associates has inspected the Carlton Landing sanitary sewer lift station and the lagoon liner and have found that both were constructed in accordance to the approved plans and specifications that were approved by ODEQ and permitted by permit No. ST000061110460 on January 23, 2012.

Respectfully Submitted,

Timothy W. Johnson, P.E.
JOHNSON & ASSOCIATES, INC.

TWJ/rw
Attachment(s)
cc: Tyler Muzny, P.E.
2732.000 / C

RECEIVED
APR 20 2012
DEQ ECLS



August 16, 2010

Ms. Wendy Sheets
ODEQ
707 N. Robinson
OKC, OK 73101

RE: Carlton Landing Confirmation of Ownership

Dear Ms. Sheets:

As the owner of Carlton Landing, on behalf of Humphreys Partners 2009, LLC, Johnson & Associates, Inc. is authorized to act as our agent for the submittal to the Oklahoma Department of Environmental Quality a request for a sanitary sewer lagoon system permit to serve the Carlton Landing development. The lagoon system is located in Section 31, T9N, R17E, I.M. Please continue to review so that the permit can be obtained.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Grant Humphreys", with a long horizontal line extending to the right.

Grant Humphreys, CEO
***The Humphreys Company, Manager,
Humphreys Partners 2009, LLC***

TWJ/lh
Attachment(s)

CC:
[Project # / Ltr]

RECEIVED

JUL 30 2010

DEQ ECLS

Engineer's Report
Carlton Landing Total Retention Sanitary Sewer Lagoon

1. Volume and Strength of Sewage Flow

The lagoon system at Carlton Landing is divided into 5 different cells covering approximately 12 acres. The first 3 cells will be built now and the other 2 will be constructed in the future as homes continue to be built. The first 3 cells are designed for the capacity of 115 homes with the later 2 cells containing 135 additional homes. The lagoon cells will have a polyethylene liner (minimum 30mm) to prevent any seepage into the ground.

The load was determined using an average daily flow of 250 gal/day per home. The total retention lagoon system is designed to have a 3' depth in all ponds during normal conditions. There is an additional 5' of freeboard to accommodate any extra peak flows during holidays and summer months being that most of the homes will be seasonal or second homes.

See Appendix A for the inflow and size calculations.

2. Existing System

Currently there is not a sanitary sewer system. This is a new development with a total retention lagoon system rather than individual septic systems.

3. Project Description and Alternatives

This project will develop approximately 250 homes over the next 4-5 years and will use the lagoon as its sanitary sewer solution. After the development is more established and the lagoons have maximized there capacity a localized sewer treatment plant will be installed to accommodate all homes in the development and the lagoons will be removed.

See Appendix B for an overall site plan and a layout of the lagoon system.

4. Construction Sequence

- a) Clearing of existing ground of trees and large rocks
- b) Grading lagoon area to match the grades established by the engineer
- c) Placing polyethylene liner in lagoons to prevent any seepage into natural ground
- d) Installing inflow pipes to the lagoons and connection pipes for the lagoons in series.
- e) Constructing a chain link fence and gate to prevent unwanted access to the lagoon area.

5. Site

The site is located near Lake Eufaula in Pittsburg County. The terrain is very steep and heavily wooded in the lagoon area with slopes of up to 7-8% across the 12 acre lagoon site. The soil is mostly sand and sandstone.

See Appendix C for the soils report with boring logs and groundwater information.

6. Water Supply

Water in the area is close by, Lake Eufaula is located within a few hundred feet from the site. However, there are no active water wells on the property.

7. Receiving Stream

The sanitary sewer lagoon system is designed to be a total retention lagoon system. There will not be any discharge into a receiving stream or body of water.

8. Sewage Sludge Disposal

Any sludge that needs to be removed in the ponds will do so in accordance with ODEQ specifications. (OAC 252:606 & OAC 252:515)

9. Industrial Wastes

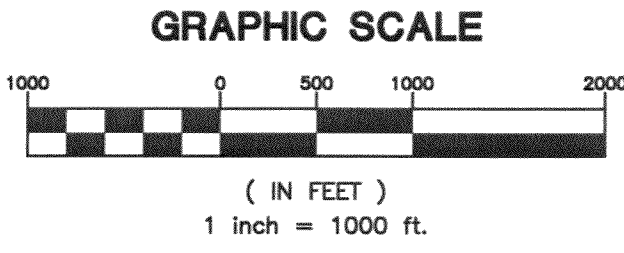
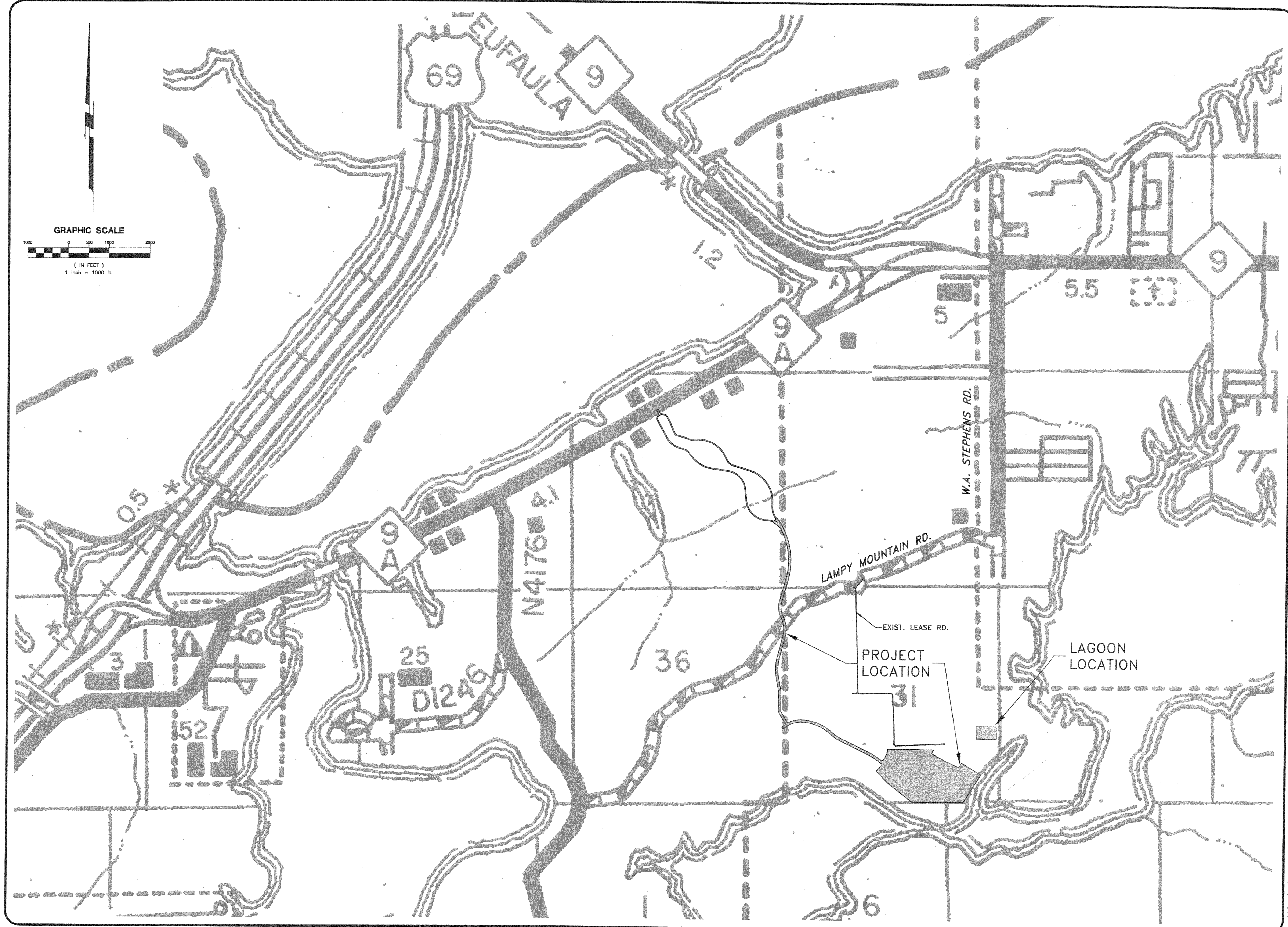
There shall not be any industrial wastes that enter the lagoon system. All of the flow will be from domestic use.

10. Collection System

The area will be served by a private sewer system that is gravity fed to a lift station that pumps the sewage to the lagoon site.

11. Financing

The estimated cost to construct the lagoon system is approx \$300,000. It will be paid for and maintained by the private developer of Carlton Landing.



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Proj. No.:
Date: 05-13-10
Scale: 1" = 1000'

Checked By: _____
Approved By: _____

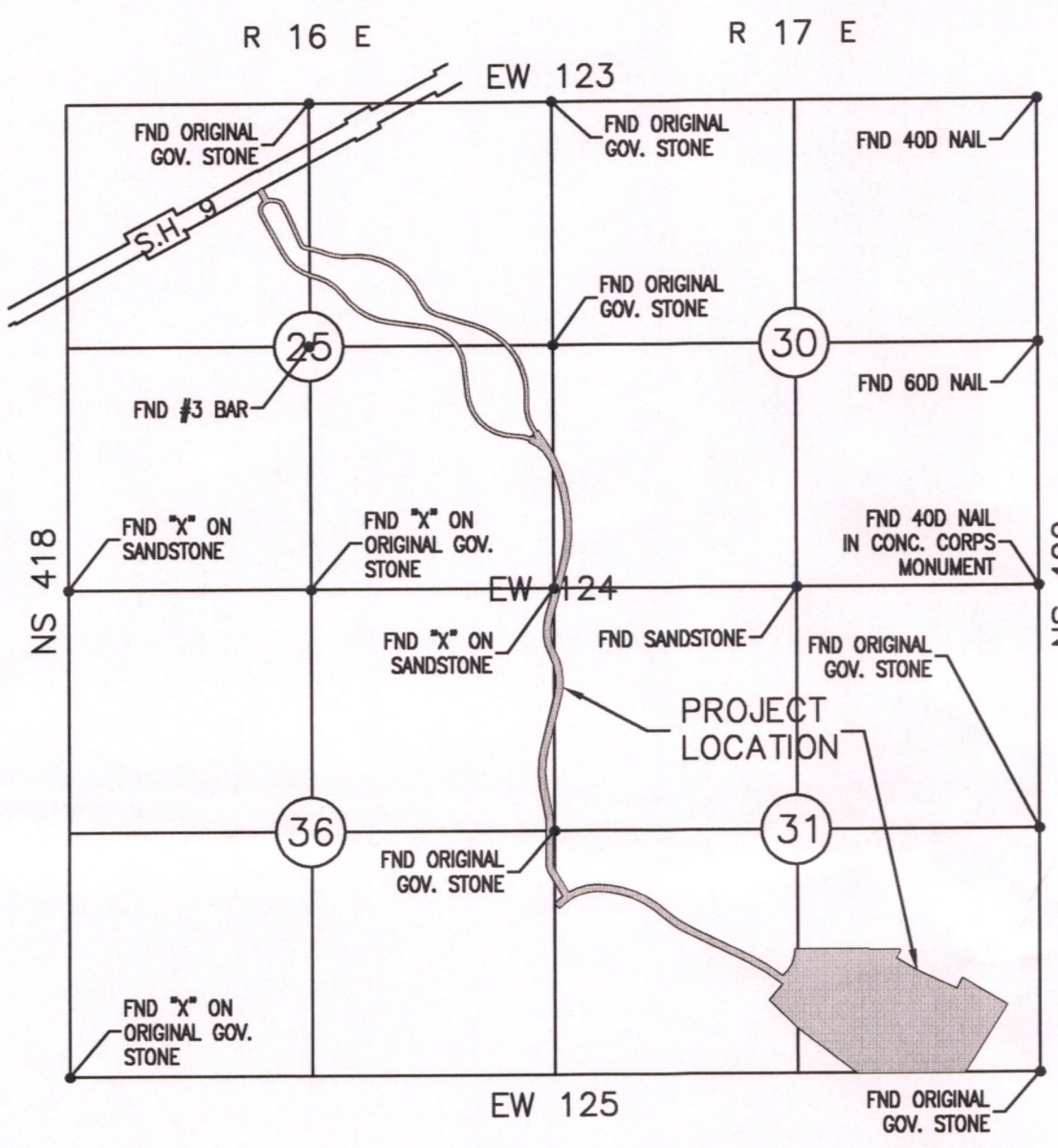
SHEET NUMBER
LM

CARLTON LANDING PHASE 1
LAKE EUFAULA, PITTSBURG COUNTY, OKLAHOMA

LOCATION MAP

Johnson & Associates, Inc.
100 E. California Ave. - Third Floor
Oklahoma City, OK 73104
(405) 235-8075 FAX (405) 235-8078
Certificate of Authorization #1484 Exp. Date: 06-30-2011
• ENGINEERS • SURVEYORS • PLANNERS •

REVISIONS	
NO.	DESCRIPTION



LOCATION MAP
SCALE: 1"=2000'

FINAL PLAT

of

CARLTON LANDING PHASE 1

BEING A PART OF THE NW/4, THE NE/4, AND THE SE/4 OF SECTION 25, AND A PART OF THE NE/4 AND THE SE/4 OF SECTION 36, T9N, R16E OF THE I.B.M., AND BEING A PART OF THE SW/4 OF SECTION 30, AND A PART OF THE NW/4, THE SW/4, AND THE SE/4 OF SECTION 31, T9N, R17E OF THE I.B.M.

AN ADDITION TO PITTSBURG COUNTY, OKLAHOMA

LINE TABLE			LINE TABLE		
LINE	LENGTH	BEARING	LINE	LENGTH	BEARING
L1	15.00'	N29°26'02"E	L33	34.44'	S12°00'26"E
L2	60.00'	S60°33'58"E	L34	26.84'	S27°38'53"E
L3	15.00'	S29°26'02"W	L35	15.00'	N29°26'02"E
L4	34.44'	S12°00'26"E	L36	0.84'	S60°33'58"E
L5	26.84'	S27°38'53"E	L37	63.95'	N88°25'31"E
L6	31.62'	S66°39'35"W	L38	29.42'	S03°37'09"E
L7	28.78'	N47°43'11"W	L39	30.00'	S65°05'52"E
L8	38.25'	N37°31'38"E	L40	30.00'	S32°22'46"E
L9	23.71'	S55°15'40"E	L41	26.51'	N35°49'43"W
L10	27.06'	N34°44'20"E	L42	42.68'	N34°58'10"E
L11	12.81'	S55°15'40"E	L43	15.00'	S31°20'07"E
L12	26.39'	N88°25'32"E	L44	25.49'	N56°37'06"W
L13	30.13'	S70°06'30"E	L45	30.45'	N38°10'06"W
L14	25.00'	N88°25'32"E	L46	30.02'	N22°13'19"E
L15	106.12'	N29°17'12"E	L47	30.15'	S80°54'43"E
L16	60.00'	N60°33'58"W	L48	34.25'	S13°46'04"E
L17	1.91'	N01°22'23"W	L49	59.95'	N17°20'52"E
L18	15.00'	S08°15'13"W	L50	59.95'	N16°31'31"E
L19	24.41'	N81°44'47"W	L51	30.00'	S73°03'49"E
L20	24.00'	N31°02'44"W	L52	22.35'	N66°39'47"E
L21	43.13'	N02°57'02"W	L53	28.06'	S32°56'44"E
L22	43.52'	N58°55'47"E	L54	15.81'	S33°22'54"E
L23	47.48'	N88°25'32"E	L55	23.03'	N48°34'36"E
L24	15.01'	S58°13'03"E	L56	30.44'	N38°09'37"W
L25	36.78'	S17°49'50"E	L57	30.02'	N22°13'19"E
L26	106.00'	N31°55'19"E	L58	30.15'	S80°54'43"E
L27	20.59'	S21°22'17"E	L59	11.43'	S13°46'04"E
L28	21.14'	S64°08'10"W	L60	24.00'	N28°06'46"E
L29	22.68'	N13°46'04"W	L61	24.00'	S60°52'10"E
L30	29.80'	N79°16'13"E	L62	24.00'	S60°52'10"E
L31	21.48'	S26°22'50"E	L63	5.91'	N28°48'23"E
L32	20.52'	S57°33'27"W	L64	46.91'	N27°58'33"E

CURVE TABLE			CURVE TABLE		
CURVE	LENGTH	RADIUS	CURVE	LENGTH	RADIUS
C1	51.43'	170.00'	C27	170.00'	170.00'
C2	503.29'	1970.13'	C28	170.00'	170.00'
C3	74.55'	230.00'	C29	170.00'	170.00'
C4	55.10'	170.00'	C30	170.00'	170.00'
C5	448.90'	2030.12'	C31	170.00'	170.00'
C6	144.63'	370.00'	C32	170.00'	170.00'
C7	167.98'	430.00'	C33	170.00'	170.00'
C8	167.98'	430.00'	C34	170.00'	170.00'
C9	100.95'	230.00'	C35	170.00'	170.00'
C10	46.41'	170.00'	C36	170.00'	170.00'
C11	6.25'	170.00'	C37	170.00'	170.00'
C12	96.75'	164.00'	C38	170.00'	170.00'
C13	14.61'	3784.00'	C39	170.00'	170.00'
C14	20.59'	3678.00'	C40	170.00'	170.00'
C15	159.24'	270.00'	C41	170.00'	170.00'
C16	48.24'	375.00'	C42	170.00'	170.00'
C17	8.00'	3370.00'	C43	170.00'	170.00'
C18	725.59'	3488.00'	C44	170.00'	170.00'
C19	130.09'	2201.00'	C45	170.00'	170.00'
C20	326.05'	2005.00'	C46	170.00'	170.00'
C21	204.36'	2201.00'	C47	170.00'	170.00'
C22	192.22'	421.00'	C48	170.00'	170.00'
C23	82.59'	140.00'	C49	170.00'	170.00'
C24	21.96'	3808.00'	C50	170.00'	170.00'
C25	129.89'	3808.00'	C51	170.00'	170.00'
C26	93.20'	488.00'	C52	170.00'	170.00'
C27	180.94'	330.00'	C53	170.00'	170.00'
C28	11.75'	3618.00'	C54	170.00'	170.00'
C29	105.91'	3512.00'	C55	170.00'	170.00'
C30	144.25'	3512.00'	C56	170.00'	170.00'
C31	106.03'	2334.07'	C57	170.00'	170.00'
C32	147.43'	3633.00'	C58	170.00'	170.00'
C33	118.09'	3663.00'	C59	170.00'	170.00'
C34	97.84'	2353.46'	C60	170.00'	170.00'
C35	98.40'	2225.00'	C61	170.00'	170.00'
C36	60.85'	1970.00'	C62	170.00'	170.00'
C37	45.09'	2030.00'	C63	170.00'	170.00'
C38	105.11'	2225.00'	C64	170.00'	170.00'
C39	47.76'	2149.56'	C65	170.00'	170.00'
C40	65.63'	2000.00'	C66	170.00'	170.00'
C41	510.02'	2000.00'	C67	170.00'	170.00'
C42	87.72'	2000.00'	C68	170.00'	170.00'
C43	54.60'	2000.00'	C69	170.00'	170.00'
C44	34.88'	2000.00'	C70	170.00'	170.00'
C45	85.86'	2000.00'	C71	170.00'	170.00'
C46	214.21'	3000.00'	C72	170.00'	170.00'
C47	61.76'	3000.00'	C73	170.00'	170.00'
C48	186.11'	4000.00'			
C49	186.11'	4000.00'			
C50	41.45'	90.00'			
C51	54.53'	2000.00'			
C52	32.83'	5000.00'			
C53	724.25'	3500.00'			
C54	35.80'	22.00'			
C55	636.40'	2213.00'			
C56	30.59'	22.00'			
C57	176.93'	3000.00'			
C58	650.72'	3648.00'			
C59	525.00'	2000.00'			
C60	32.49'	22.00'			
C61	32.13'	22.00'			
C62	154.06'	2162.00'			
C63	47.73'	45.00'			
C64	46.33'	45.00'			
C65	89.67'	152.00'			
C66	161.12'	3796.00'			
C67	66.77'	45.00'			
C68	95.49'	5000.00'			
C69	22.96'	15.00'			
C70	194.80'	433.00'			
C71	330.69'	2040.00'			
C72	19.37'	470.00'			
C73	359.28'	630.00'			

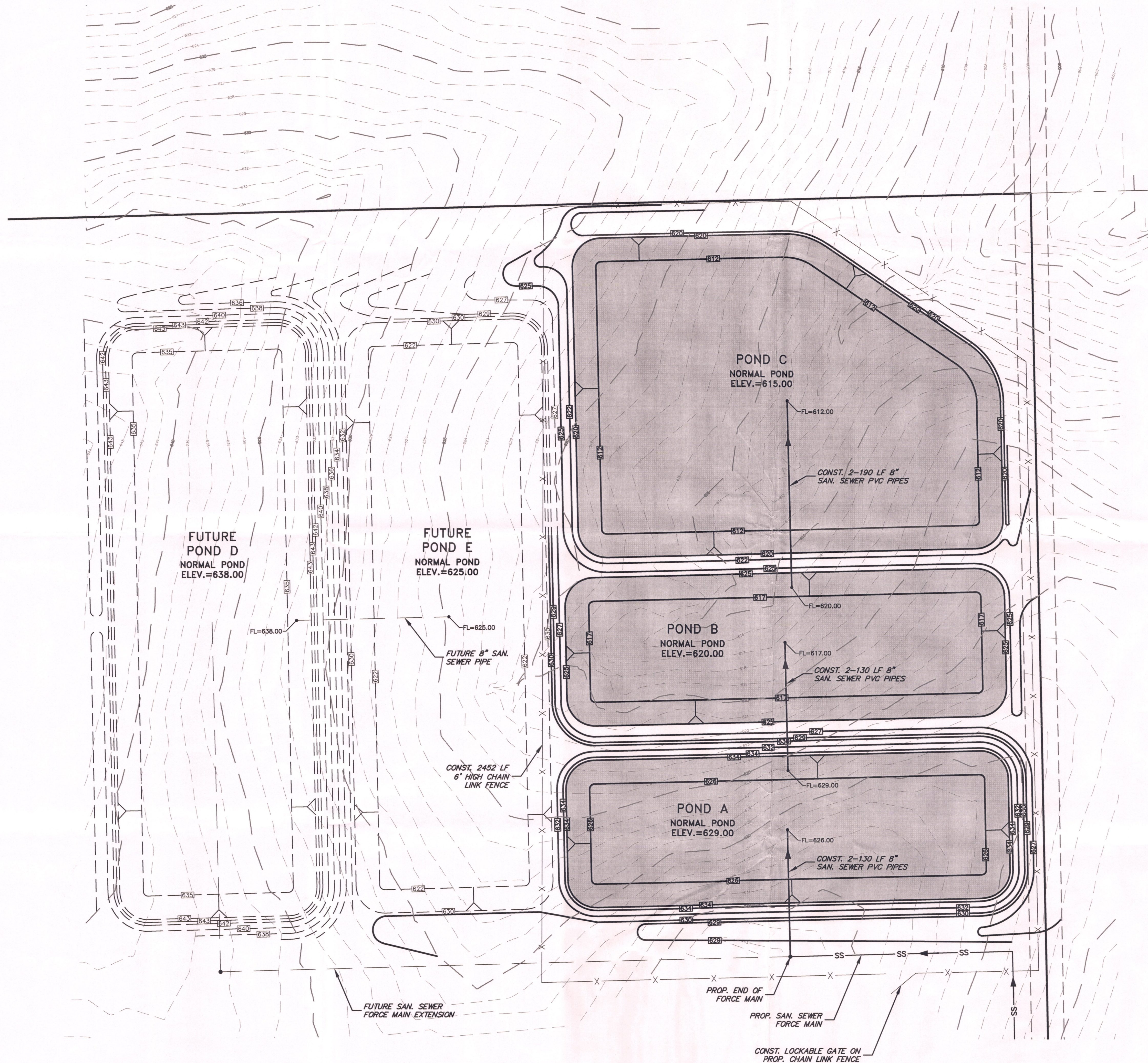
LEGEND:
P.O.C. = POINT OF COMMENCEMENT
P.O.B. = POINT OF BEGINNING
NR = NOT RADIAL
B/L = BUILDING LIMIT LINE
D & U/E = DRAINAGE & UTILITY EASEMENT
U/E = UTILITY EASEMENT
D/E = DRAINAGE EASEMENT
L.N.A. = LIMITS OF NO ACCESS
C.A. = COMMON AREA

***** NOTE *****
THIS SURVEY MEETS THE OKLAHOMA MINIMUM STANDARDS FOR THE PRACTICE OF LAND SURVEYORS AS ADOPTED BY THE OKLAHOMA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS, AND THAT SAID FINAL PLAT COMPLIES WITH THE REQUIREMENTS OF TITLE 11 SECTION 41-108 OF THE OKLAHOMA STATE STATUTES.

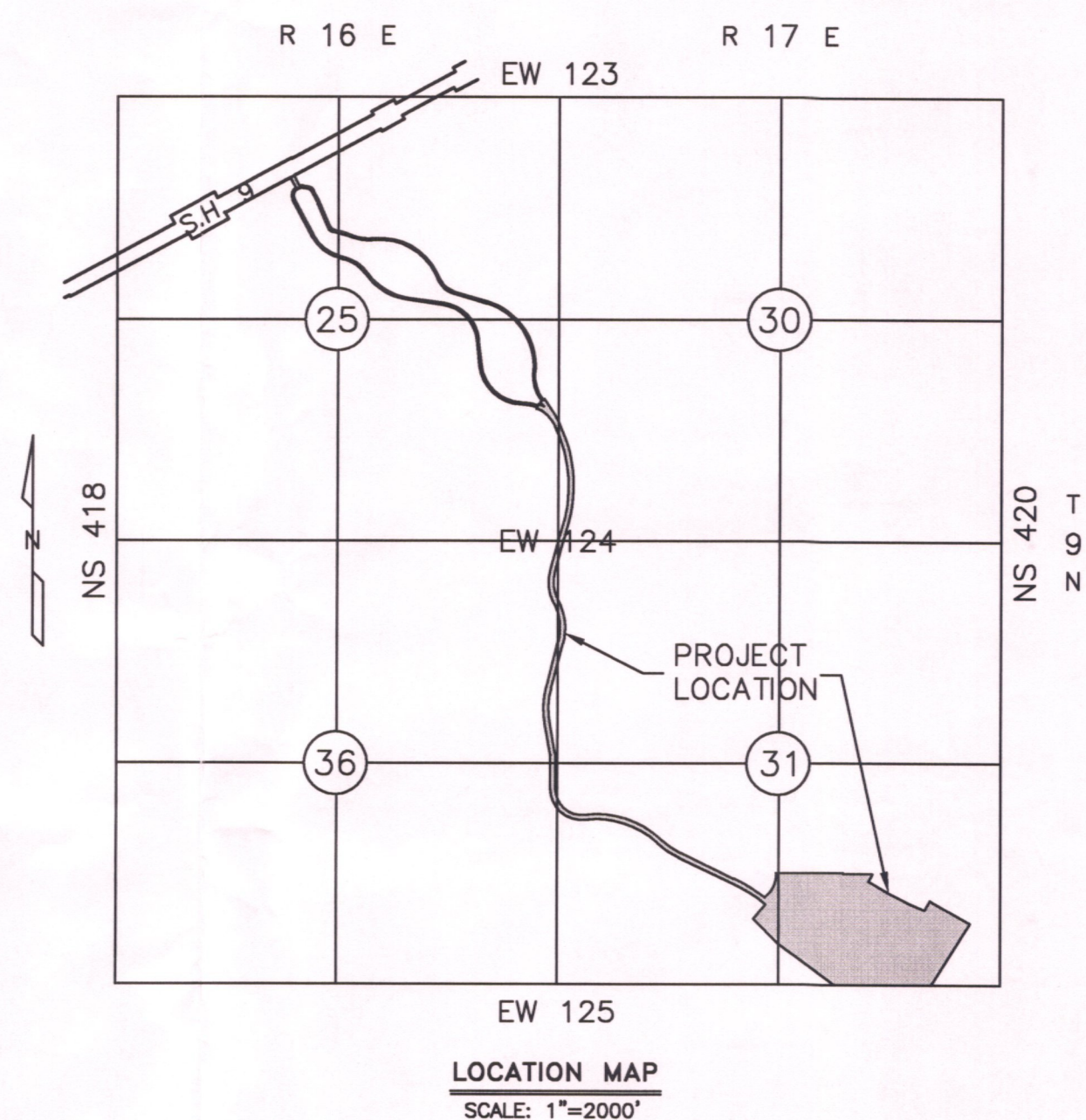
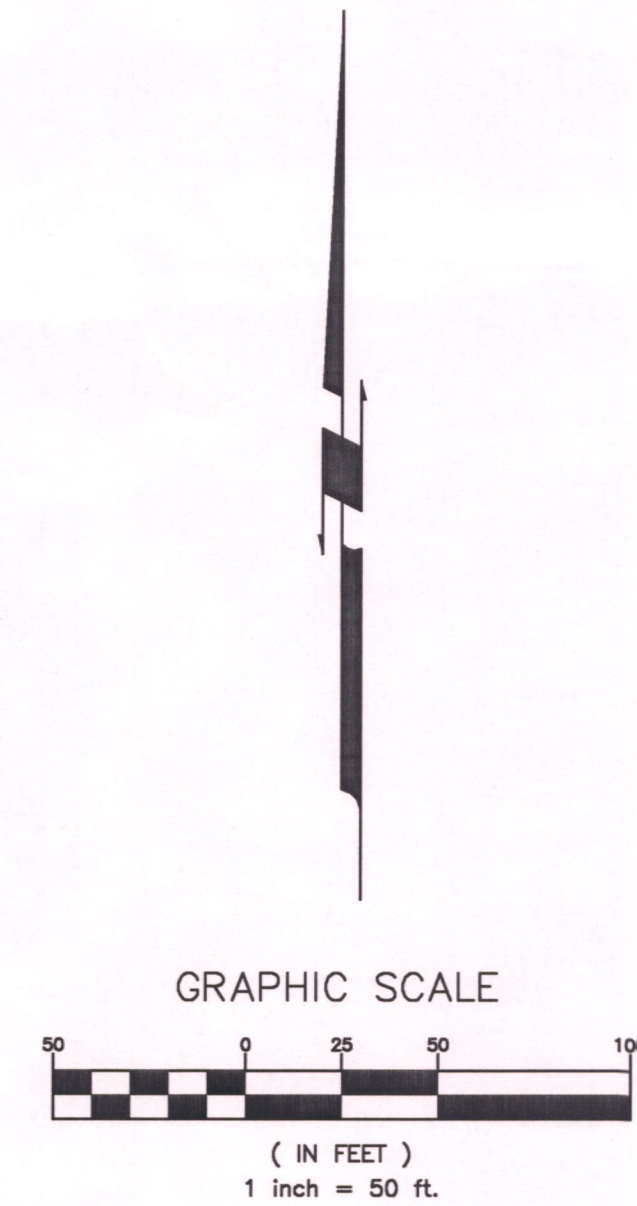
• DENOTES FND. #3 BAR w/CAP STAMPED "J&A 1484" UNLESS OTHERWISE NOTED
○ DENOTES SET #3 BAR w/CAP STAMPED "J&A 1484" UNLESS OTHERWISE NOTED
△ DENOTES SET CST NAIL IN "1484 J&A SHINER" UNLESS OTHERWISE NOTED

FINAL PLAT of CARLTON LANDING PHASE 1

Johnson & Associates, Inc.
1 E. Sheridan Ave., Suite 200
Oklahoma City, OK 73104
(405) 235-8075 FAX (405) 235-8078
Certificate of Authorization #1484 Exp. Date: 06-30-2011
• ENGINEERS • SURVEYORS • PLANNERS •



- LAGOON GENERAL NOTES**
1. ALL LAGOONS SHALL BE LINED WITH A POLYETHYLENE LINER (30mm MINIMUM) AND APPROVED BY THE ENGINEER.
 2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ODEQ (OAC 252:656).



ONE CALL UTILITY LOCATION NUMBER
 840-5032
 1-800-522-6543
 This number is to be used for information on the location of all underground utilities. Contact this number and other numbers specified in the plans prior to any excavation.

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REVISIONS	
NO.	DESCRIPTION

Johnson & Associates, Inc.
 100 E. California Ave. - Third Floor
 Oklahoma City, OK 73104
 (405) 235-8075 FAX (405) 235-8078
 Certificate of Authorization #1484 Exp. Date: 06-30-2011
 • ENGINEERS • SURVEYORS • PLANNERS •

CARLTON LANDING PHASE 1
 LAKE EUFAULA, PITTSBURG COUNTY, OKLAHOMA
 SEWAGE LAGOON TREATMENT AREA

Proj. No.:
 Date: 06-14-10
 Scale: 1"= 50'
 Checked By: _____
 Approved By: _____

SHEET NUMBER
LG

APPENDIX A

Carlton Landing Lagoon Sizing

Inflow:

From Homes (250 homes @ 250 gal/day):

Phase 1 (# of homes)	115
Phase 2 (# of homes)	135
Total inflow (gal/day)	62500
Total inflow (ft ³ /day)	8355

For Pittsburg
Daily:

3,049,575 ft³/yr

55.66 59.27

1.311

1.195' net evap/yr

1.2

From Precipitation:

Precipitation (in/yr)	46.2
Precipitation (ft/yr)	3.85
Precipitation (ft/day)	0.0105

Outflow:

From Evaporation:

Evaporation (in/yr)	75 70
Evaporation (ft/yr)	6.25
Evaporation (ft/day)	0.017

15

Calculations:

$$\frac{8355 \frac{\text{ft}^3}{\text{day}}}{43560 \frac{\text{ft}^2}{\text{acre}}} = \left[0.1918 \frac{\text{acre} \cdot \text{ft}}{\text{day}} \right] + \left[0.0105 \frac{\text{ft}}{\text{day}} \right] = \underline{\underline{0.2023 \frac{\text{acre} \cdot \text{ft}}{\text{day}}}}$$

$$\text{Total lagoon sizing} = \frac{0.2023 \frac{\text{acre} \cdot \text{ft}}{\text{day}}}{0.017 \frac{\text{ft}}{\text{day}}} = \underline{\underline{11.9 \text{ acres}}}$$

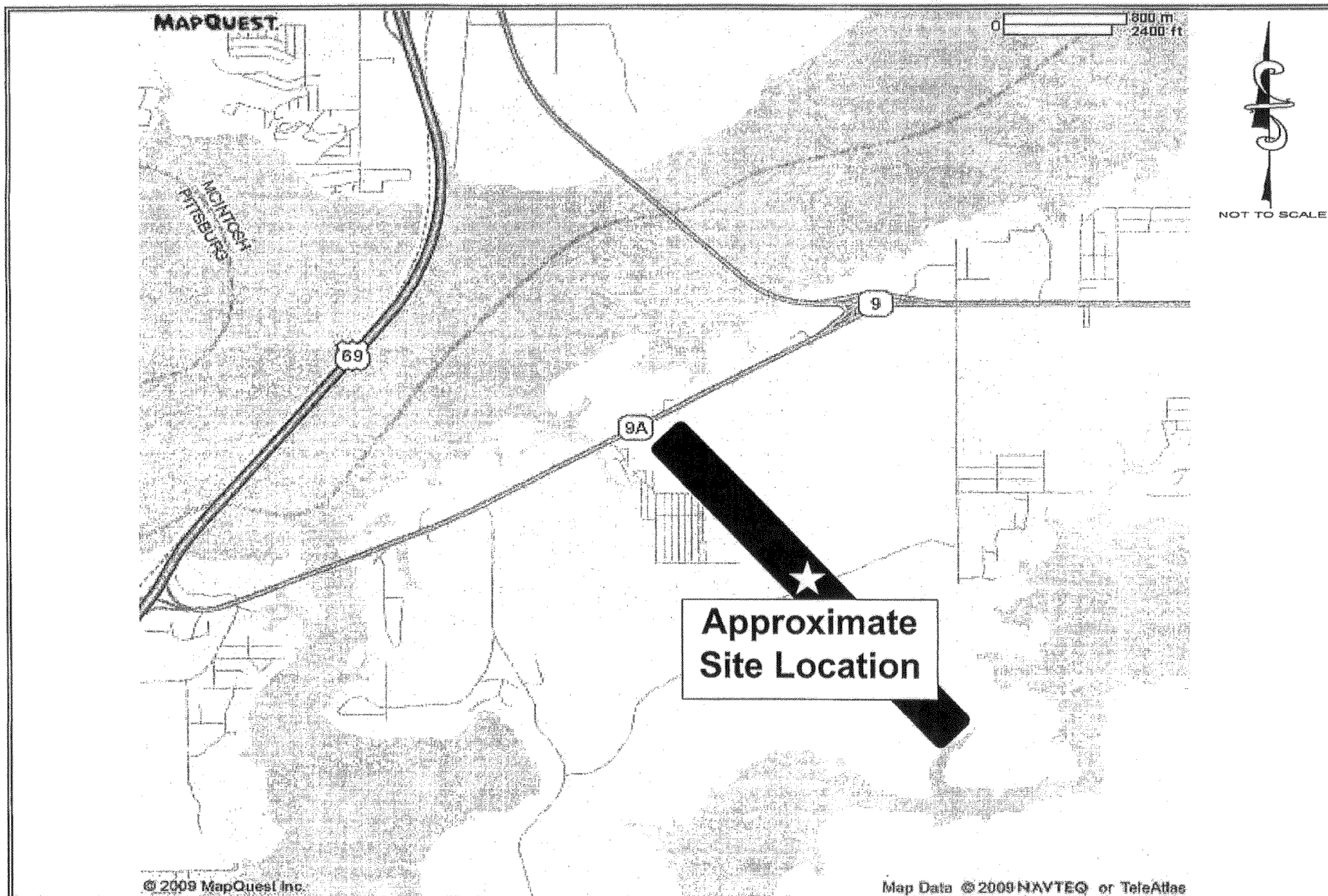
53.3 acres

58

Phase	Storage (acres)
1 (Ponds A, B, & C)	5.5
2 (Ponds D & E)	6.4

APPENDIX B

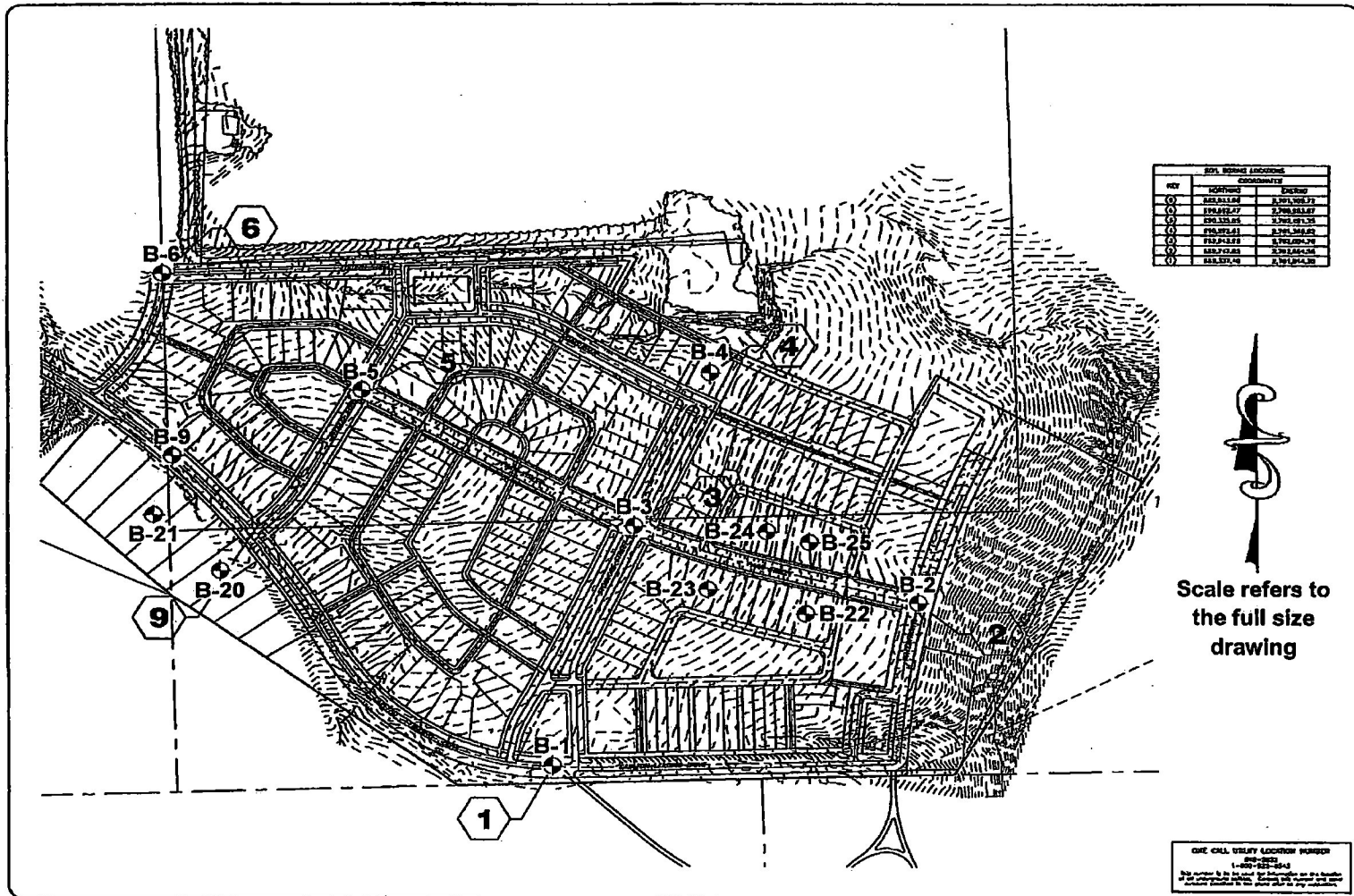
APPENDIX C



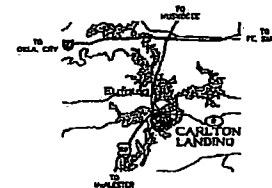
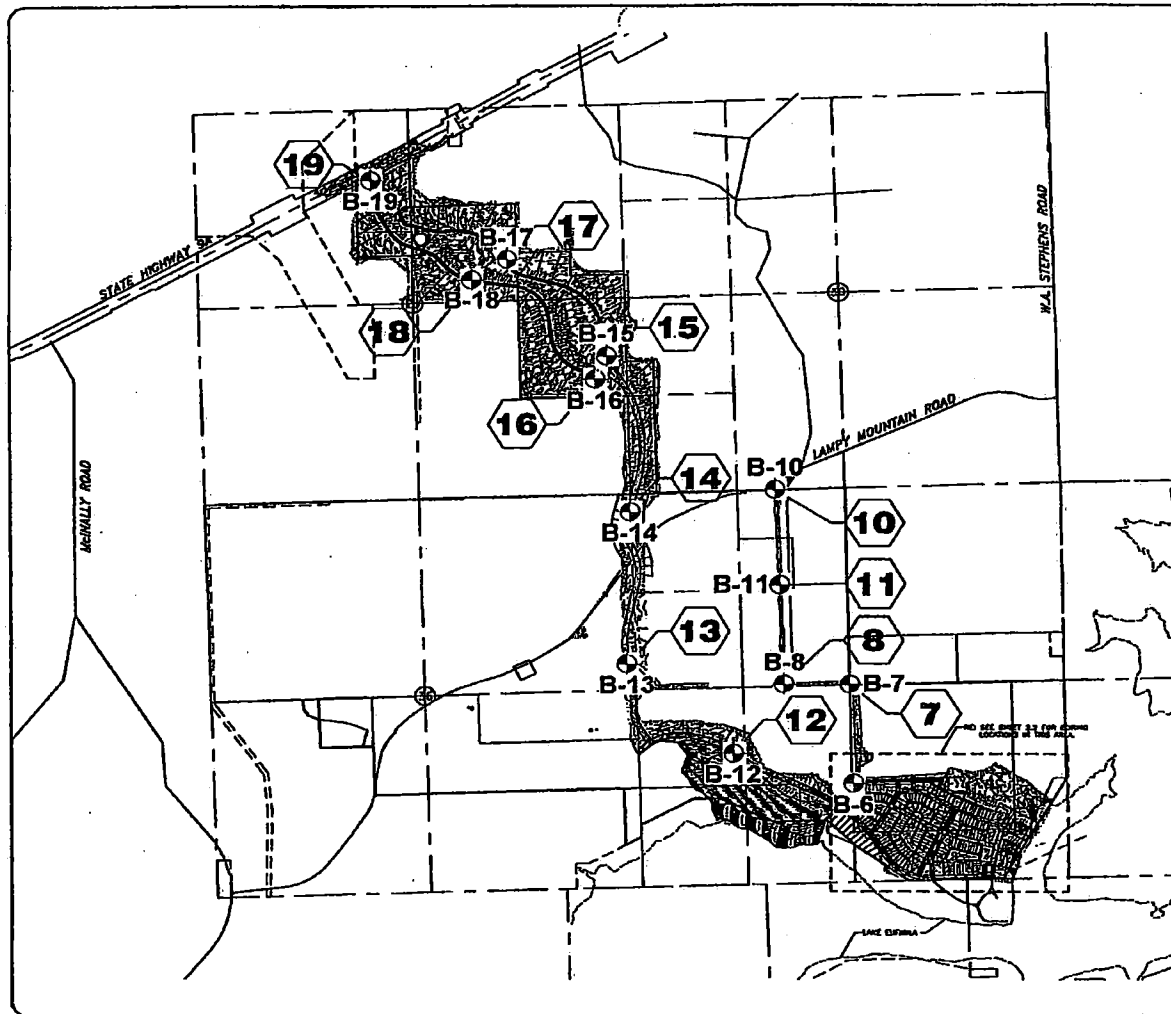
Vicinity Map

Project Name: Carlton Landing Geotechnical Investigation and Pavement Recommendations
Project Location: Pittsburg County, Oklahoma
Project No.: 2309-3149

**STANDARD
TESTING**
AND ENGINEERING COMPANY



**STANDARD
TESTING**
AND ENGINEERING COMPANY



FOR BORING LOCATIONS	
NO.	COORDINATES
7	2454484.51
8	2454484.51
9	2454484.51
10	2454484.51
11	2454484.51
12	2454484.51
13	2454484.51
14	2454484.51
15	2454484.51
16	2454484.51
17	2454484.51
18	2454484.51
19	2454484.51



Scale refers to
the full size
drawing

ONE CALL UTILITY LOCATION NUMBER
800-800-8000
1-800-800-8000
For more information, call 1-800-800-8000
or visit our website at www.onecall.com

CARLTON LANDING PHASE 1

DATE	10/1/2010
BY	J. J. J.
CHECKED BY	J. J. J.
APPROVED BY	J. J. J.
PROJECT NO.	2309-3149
SHEET NUMBER	1

CARLTON LANDING PHASE 1
LAKE EYMAL, PITTSBURG COUNTY, OKLAHOMA
BORING PLAN

Site and Boring Location Plan

Project Name: Carlton Landing Geotechnical Investigation and Pavement Recommendations
Project Location: Pittsburg County, Oklahoma
Project No.: 2309-3149

**STANDARD
TESTING**
AND ENGINEERING COMPANY

SOIL BORING LOG

Boring No. B-6

Project: Carlton Landing GI & Pavement Recommendations

Project No.: 2309-3149

Project Location: Pittsburg County, Oklahoma

Date Drilled.: 12/1/09

Boring Location: Lat: 35.20647625; Lon: -95.54816033

Project Engineer: Jieliang Pan, P.E.

Drill Method: CME w/ 4" Solid Flight Auger

Field Logger: Johnny Jarman

Surface Elevation: 685.920 feet

Water Depth: Dry @ Completion

Remarks: Ground elevation provided by client

Elev./Depth Feet	Symbol	Samples	SPT Blows/ Increment	Soil Description	Dry Density (pcf)	% Passing #200 Sieve	Moisture/Plasticity	
							PL	LL
0							10 20 30 40 50 60	
685				Tan Brn. SILTY SANDSTONE V. Moist, Nonplastic USCS: SM; AASHTO: A-4(0)		39.6	Water Content, % - ● 10 20 30 40 50 60	
2.5								
682.5								
5								
680								
7.5								
677.5								
10								
675								
12.5								
672.5								
15								
670								

SOIL BORING LOG

Boring No. B-7

Project: Carlton Landing GI & Pavement Recommendations

Project No.: 2309-3149

Project Location: Pittsburg County, Oklahoma

Date Drilled.: 12/1/09

Boring Location: Lat: 35.21010719; Lon: -95.54810580

Project Engineer: Jieliang Pan, P.E.

Drill Method: CME w/ 4" Solid Flight Auger

Field Logger: Johnny Jarman

Surface Elevation: 724.*** feet

Water Depth: Dry @ Completion

Remarks: Ground elevation provided by client

Elev./Depth Feet	Symbol	Samples	SPT Blows/ Increment	Soil Description	Dry Density (pcf)	% Passing #200 Sieve	Moisture/Plasticity						
							PL						LL
							10	20	30	40	50	60	
Water Content, % -							●						
							10	20	30	40	50	60	
0				Brn. SILTY SAND w/ Gravel V. Moist, Nonplastic		39.2							
722.5				Brn. SILTY SANDSTONE Moist, Nonplastic USCS: SM; AASHTO: A-4(0)									
2.5													
720													
5													
717.5													
7.5													
715													
10													
712.5													
12.5													
710													
15													
707.5													

SOIL BORING LOG

Boring No. B-8

Project: Carlton Landing GI & Pavement Recommendations

Project No.: 2309-3149

Project Location: Pittsburg County, Oklahoma

Date Drilled.: 12/1/09

Boring Location: Lat: 35.21018976; Lon: -95.55095354

Project Engineer: Jieliang Pan, P.E.

Drill Method: CME w/ 4" Solid Flight Auger

Field Logger: Johnny Jarman

Surface Elevation: 765.*** feet

Water Depth: Dry @ Completion

Remarks: Ground elevation provided by client

Elev./Depth Feet	Symbol	Samples	SPT Blows/ Increment	Soil Description	Dry Density (pcf)	% Passing #200 Sieve	Moisture/Plasticity											
							PL											LL
							Water Content, % - ●											
							10	20	30	40	50	60						
765	0			Tan Brn. SILTY SANDSTONE Moist, Nonplastic USCS: SM; AASHTO: A-2-4		26.5												
762.5	2.5																	
760	5																	
757.5	7.5																	
755	10																	
752.5	12.5																	
750	15																	

SOIL BORING LOG

Boring No. B-10

Project: Carlton Landing GI & Pavement Recommendations

Project No.: 2309-3149

Project Location: Pittsburg County, Oklahoma

Date Drilled.: 12/1/09

Boring Location: Lat: 35.21735691; Lon: -95.55104095

Project Engineer: Jieliang Pan, P.E.

Drill Method: CME w/ 4" Solid Flight Auger

Field Logger: Johnny Jarman

Surface Elevation: 758.441 feet

Water Depth: Dry @ Completion

Remarks: Ground elevation provided by client

Elev./Depth Feet	Symbol	Samples	SPT Blows/ Increment	Soil Description	Dry Density (pcf)	% Passing #200 Sieve	Moisture/Plasticity									
							Moisture/Plasticity									
							PL	10	20	30	40	50	60	LL		
							Water Content, % - ●									
							10	20	30	40	50	60				
0				Brn. & Dk. Brn. SILTY SAND w/ Gravel		47.1										
757.5				V. Moist, Nonplastic												
				USCS: SM; AASHTO: A-4(0)												
				Tan Brn. SILTY SANDSTONE												
				Moist, Nonplastic												
2.5				Auger Refusal @ 2 ft.												
755																
5																
752.5																
7.5																
750																
10																
747.5																
12.5																
745																
15																
742.5																

SOIL BORING LOG

Boring No. B-11

Project: Carlton Landing GI & Pavement Recommendations

Project No.: 2309-3149

Project Location: Pittsburg County, Oklahoma

Date Drilled.: 12/1/09

Boring Location: Lat: 35.21384975; Lon: -95.55097046

Project Engineer: Jieliang Pan, P.E.

Drill Method: CME w/ 4" Solid Flight Auger

Field Logger: Johnny Jarman

Surface Elevation: 771.951 feet

Water Depth: Dry @ Completion

Remarks: Ground elevation provided by client

Elev./Depth Feet	Symbol	Samples	SPT Blows/ Increment	Soil Description	Dry Density (pcf)	% Passing #200 Sieve	Moisture/Plasticity						
							PL						LL
							10	20	30	40	50	60	
							Water Content, % - ●						
							10	20	30	40	50	60	
0				Tan Brn. SILTY SAND w/ Gravel V. Moist, Nonplastic				●					
770				Tan Brn. SILTY SANDSTONE V. Moist, Nonplastic									
2.5				USCS: SM; AASHTO: A-2-4		34.3		●					
767.5													
5													
765													
7.5													
762.5													
10													
760													
12.5													
757.5													
15													
755													